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Title

Characteristic-function-based independent component analysis.

Source**Signal Processing, {Signal-Process-Netherlands}**, Oct. 2003, vol. 83, no. 10, p. 2195-208, 30 refs, CODEN: SPRODR, ISSN: 0165-1684.

Publisher: Elsevier for EURASIP, Netherlands.

Author(s)[Eriksson-J](#), [Koivunen-V](#).**Author affiliation**Eriksson, J., Koivunen, V., **Signal Process. Lab.**, Helsinki Univ. of Technol., Finland.**Abstract**

A novel characteristic-function-based method for **blind separation** of statistically independent **source** signals is proposed in the independent component analysis (ICA) framework. The definition of independence may be given in terms of factorization of joint characteristic function. These criteria always exist and two of them have desirable large sample properties. An objective function for estimating the independence criteria directly from data is proposed. Simulation results demonstrate that the method performs reliably even in such situations where many widely used ICA methods may fail.

Descriptors[BLIND-SOURCE-SEPARATION](#); [INDEPENDENT-COMPONENT-ANALYSIS](#); [MINIMISATION](#).**Classification codes**[B6140 Signal-processing-and-detection*](#);
[B0240Z Other-topics-in-statistics](#);
[B0260 Optimisation-techniques](#);
[C1260S Signal-processing-theory*](#);
[C1180 Optimisation-techniques](#);
[C1140Z Other-topics-in-statistics](#).**Keywords**characteristic-function-based-method; independent-component-analysis; **blind-source-separation**;

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Classification codes A: Physics, 0-1

independent-source-signals; joint- characteristic-function-factorization; independence-criteria;
empirical-characteristic-function; **Jacobi-algorithm**; Fourier-methods; mutual-information;
optimization; asymptotic-properties; Gaussian-noise.

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